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SUMMARY

WORKS ON GEOPHYSICS OF THE ALL-UNION SCIENTIFIC RESEARCH GEOLOGICAL INSTITUTE OF THE MINISTRY OF GEOLOGY OF THE USSR

Symposium No 11

"Application of Aerial Surveying to Prospecting for Iron-Ore Deposits" A. A. Logachev, 5 pp

Aerial magnetic surveying has been used to locate iron-ore deposits in the USSR since 1939, when it was tried experimentally by the Western Siberian Geological Administration, working with the All-Union Geological Institute. Since then it has been used in the Far East, in the Transbaikal, and Baikal areas. Article gives a summary of the method, illustrated with diagrams showing variations in the magnetic field over various parts of the Kuznets Alata.

"Experience With Aeromagnetic Surveying for Geocartography" A.I. Katskov, 3 pp

Results of work carried out in 1944 in which an aircraft was used to obtain data for the geographical



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cartography of the northern part of the Kuznets Basin and Kuznets Alata. Map showing variations of the magnetic field.

"Application of the Sliding Contact Method (NSK) to Prospecting for Ore Deposits" A.S. Semenov, O.K. Vladimirov, 15 pp

Description of the use of the sliding contact method, or NSK, for determining the electrical properties of rock. One or more electrodes is lowered down into the shaft and allowed to slide along the side of the cut. Article describes electrical apparatus by which this sliding electrode is utilized to obtain continuous data on the nature of the rock through which the shaft passes.

"The Charged Body Method in Prospecting for Sulfide Deposits" A.S. Semenov, 13 pp

Article gives concrete examples of the methods used for utilizing a charged body in various prospecting work. The work uses either the isolines of potential or the gradient profiles. The authors recommend the second method, since it gives quantitative results and is technically simpler.

"Experience With the Application of Geophysical Methods for the Geological Structural Prospecting of the Northern Part of European USSR" A.G. Tarkhov, 18 pp

Description of work carried on in recent years on the tectonics and geophysical properties of subject area. Includes map of locations of work in Komi ASSR. Data on the physical properties of the rock strata in the area, direct current prospecting, seismic prospecting, possibilities of the geophysical method, and the outlook for geophysical work.

"Experience With the Application of Geophysical Methods for Research on Corundum Deposits" E.A. Andreyev, 18 pp

Work done in 1940 by the All-Union Geological Institute at the direction of the Committee for Geology of the Soviet of Peoples Commissars USSR on one of the corundum deposits of Central Kazakhstan. Data on the geology of the Borly deposit, gravitational surveys, magnetic surveys, and work by the physicochemical method.

"The Electrical Conductivity of Rock at Temperatures Below Zero" M.A. Nesterova, L.Ya. Nesterov, 13 pp

Results of experiments carried out in 1938 in the Lab-

oratory of Geophysical Assaying of the All-Union Scientific Research Geological Institute. Some of the authors' comments on possible future applications of the work are given, with diagrams of the apparatus used and graphs showing the resistance curves under various conditions.

Symposium No 12

"On the Resistance and Dielectric Constant of Rocks in an Alternating Electrical Field" A.G. Tarkhov, 38 pp

Report on work done to clarify the exact nature of the behavior of rocks in an electrical field. The nature of the electrical properties of rocks has gained increased interest in recent years, in connection with the development of electrical methods of geophysical prospecting. Correct interpretation of field data is impossible without a correct analysis of the processes actually obtaining. Extensive bibliography.

"The Effect of Structure on the Specific Resistance of Aggregates" A.S. Semenov, 18 pp

In addition to being complicated by the components of and presence of foreign substances in rocks, the behavior of electric currents is rendered more complex by the structural peculiarities of the rocks themselves. Article reviews the problem of electrical conductivity in two-component aggregates, with equations, tables, and graphs for computation.

"A New Method of Determination for the Elasticity of Rocks" A.G. Tarkhov, 10 pp

The development of the seismic method of geological research and the advances made by geological engineering have made necessary complete knowledge of the elastic properties of the rock in the region under study. In this method a steel ball is dropped on a small polished sample of the rock to be tested from various heights, and the elastic properties of the sample calculated from the height the ball bounces. Diagrams of apparatus.

"Determination of the Thermal Constants of Rock by the 'Regular Regime' Method" V.S. Glebovskaya, 18 pp

The 'regular regime' method, devised in 1929 by Professor G.M. Kondrat'yev, is based on the simplest case of a variable (according to time) state of a body, either cooling or heating; it utilises the simplest nonstationary thermal state of a body, cooling. It distinguishes three stages of this process, and utilises the third, in which

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the temperature field will be determined by the form, dimensions, physical properties, and thermal coefficient of the body. Article develops the method for practical application in geological work, and presents calculation graphs and tables.

"The Principles and Apparatus for the Method of Deep Electromagnetic Sounding of the Schistose Structure of a Massif" A.P. Krayev, V.P. Zatsepin, 7 pp

In this method a horizontal arc-shaped electrical antenna is placed over the area to be studied, and the nature of the ground beneath determined by mathematical interpretation of the reflected waves. Diagrams, showing portable apparatus mounted on a truck, and circuit diagrams of the electrical apparatus.

"The Lower Limit of the Man'ga Iron-Ore Deposit" A.P. Kazanskiy, V.V. Suslennikov, 6 pp

In the summer of 1945 geological research was carried out in the southern part of the Karelo-Finnish SSR with the objective of finding large-scale iron-ore deposits, and forming a metallurgical base near Leningrad. Article presents information gathered in the course of this work, presenting mathematical calculations for the determination of the limits of the ore zone in this area, according to data gathered by aerial research and geophysical work on the surface.

"The Possibilities of Geophysical Prospecting for Southern Ural Manganese Deposits" M.V. Tuneyev, 21 pp

Article presents a review of past geophysical work for manganese in the USSR, the results of experimental field research work, and an analysis of the geological, physical, and chemical characteristics of the Southern Ural manganese regions. Article includes a survey map locating about 50 manganese deposits in the vicinity of Magnitogorsk, a map of the magnetic anomaly in the Nikopol'sk manganese ore region, a schematic geological map of the Abselilovsk Rayon of Bashkir ASSR, and graphical representations of the results of geophysical work.

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